

# PHENIX WEEKLY PLANNING

2/14/2008

Don Lynch



# Run 8 Task Schedule

<u>Item</u>	<u>Start</u>	<u>Finish</u>
RPC support	On Going	On Going
CM Crane design review	2/1	2/28
Lab Holiday (Presidents Day)	2/18	2/18
Next scheduled Maint. Day?	2/27	2/27
Mu Trigger FEE Prototype II install	2/27	2/27
Complete new beampipe design	2/29	2/29
End PP run	3/12	3/12
500 GeV Run	3/13	3/14
End of Run 8	3/15	5/27
Install new UPS	~3/15	~3/31
End of Run Party	4/4	4/4
Install Gas house UPS's	4/15	6/13
Install HBD	7/15	9/15

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# Yesterday's Brief Maintenance Access

- MuTrigger FEE Prototype II test walkdown (crawldown?)  
Permit is in place
- work on RICH trigger boards
- Other items - ?

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## Next Maintenance Access: Feb 27th

Install and Test Mu Trigger prototype FEE

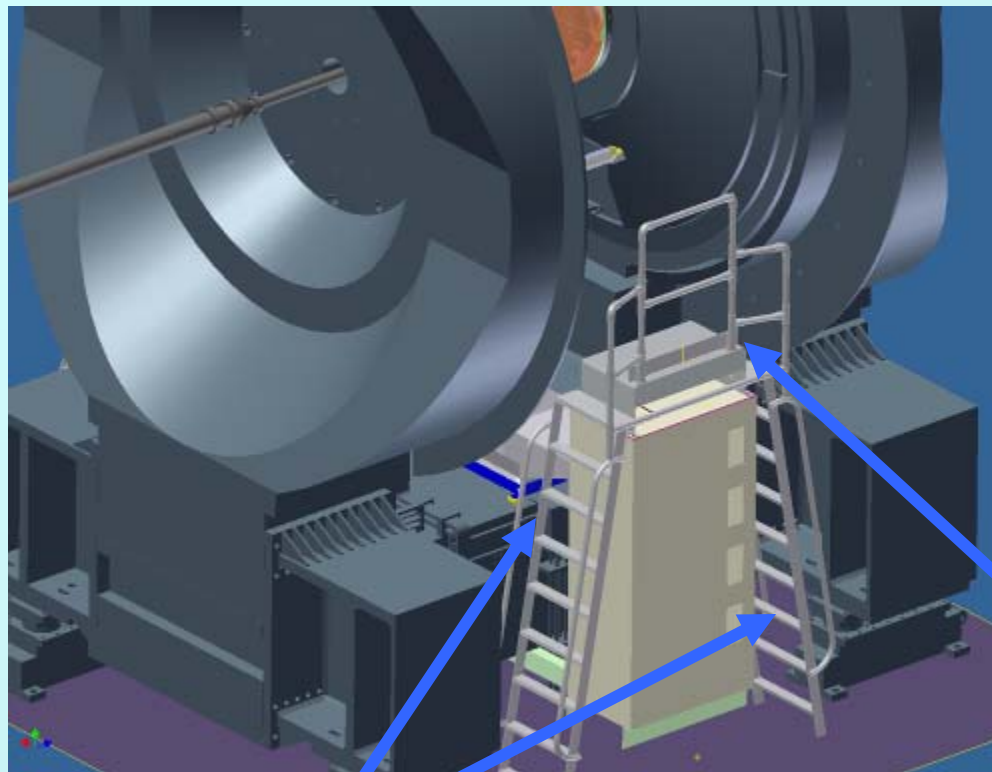
Field fit CM access stair hardware

Other Tasks ?

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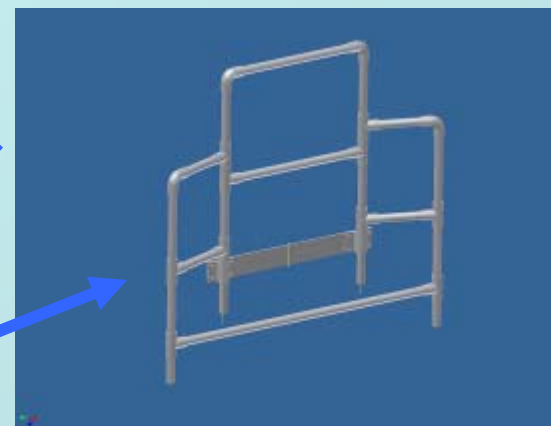
# CM Ladder/Stair Shutdown Access

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Ladders done

Railing to be ready  
for next access



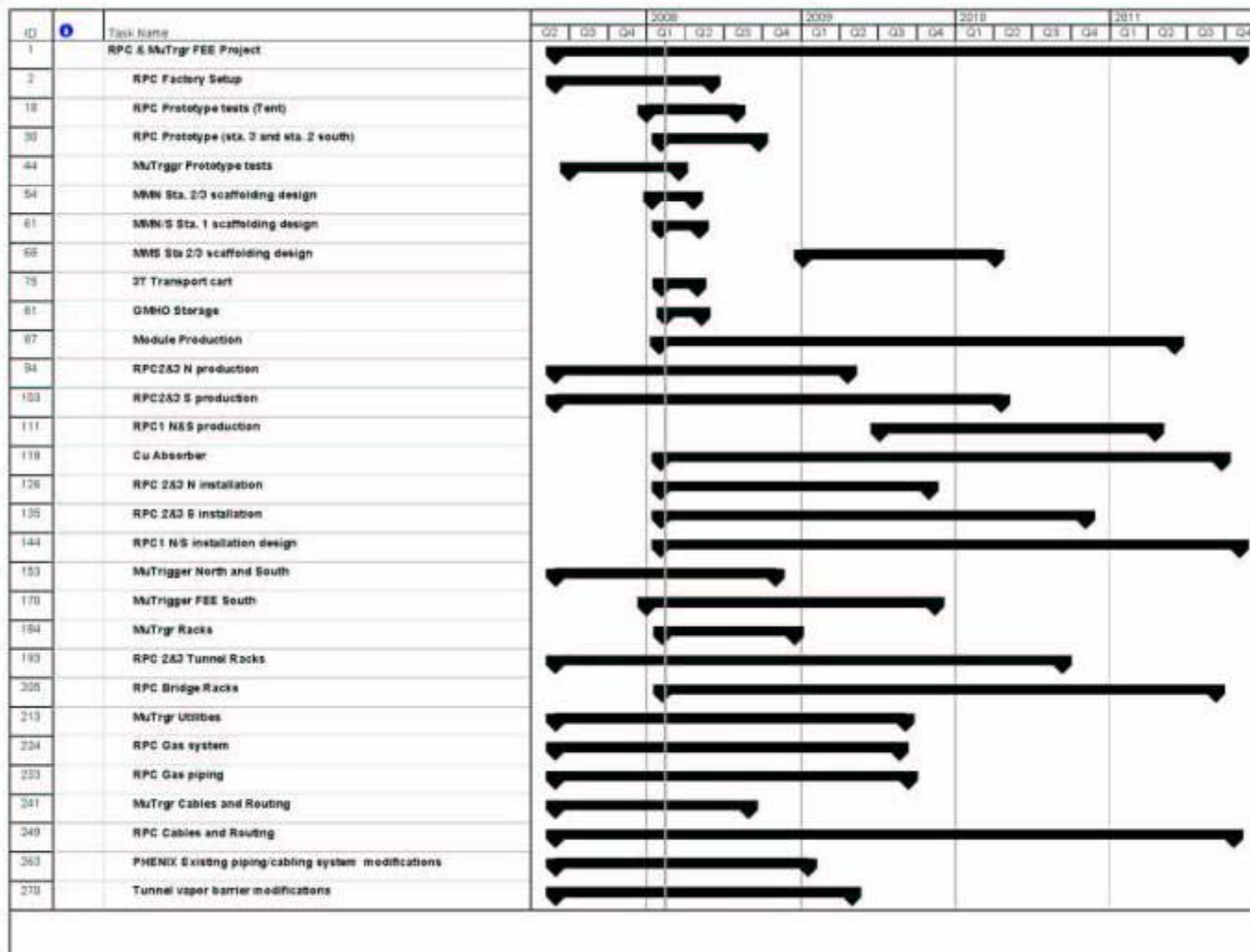
# RPC & Mu Trigger FEE Detailed Schedule.

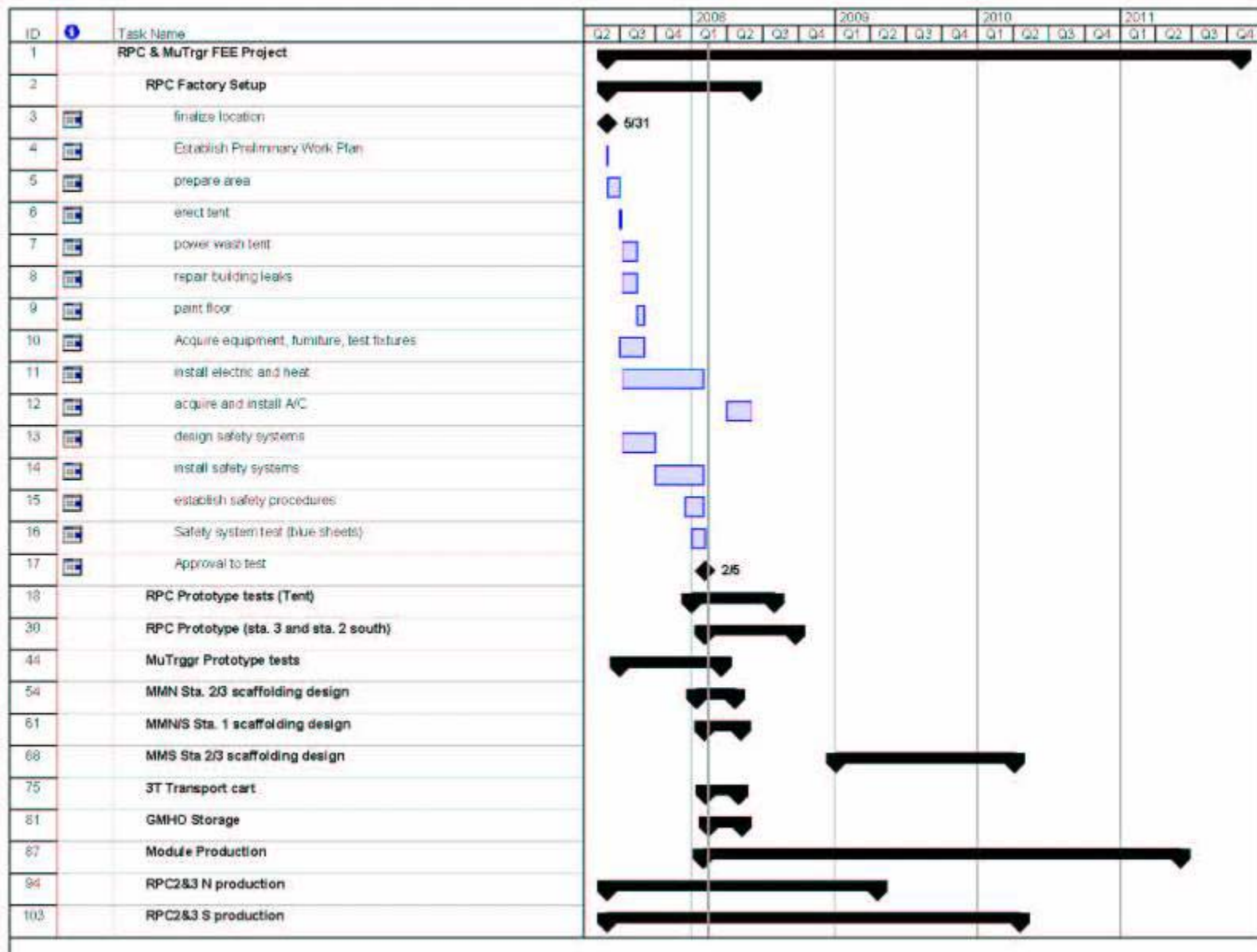
In progress,  
details next week

36 Major  
subtasks

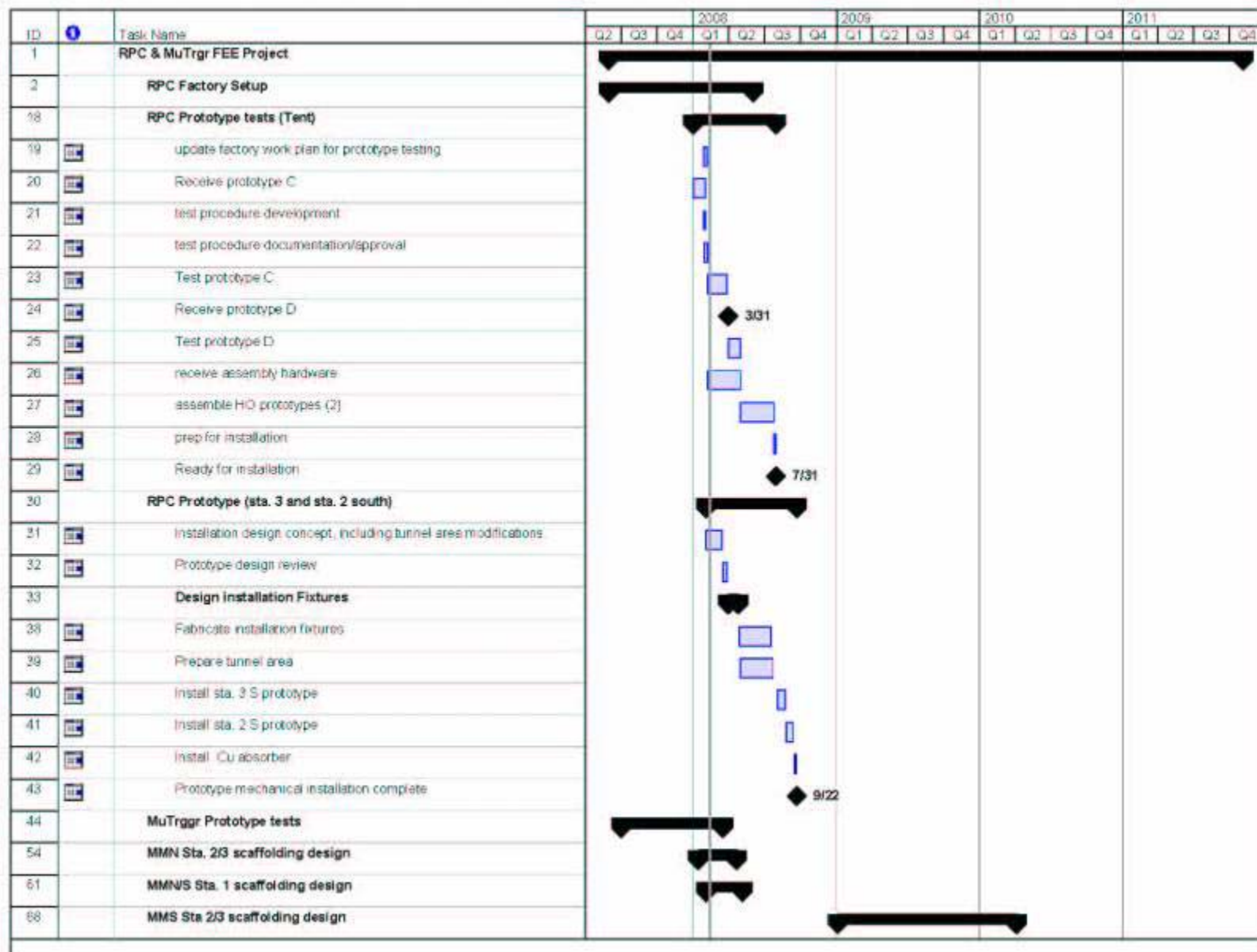
239 detailed  
tasks/milestones

From now to end  
of 2011

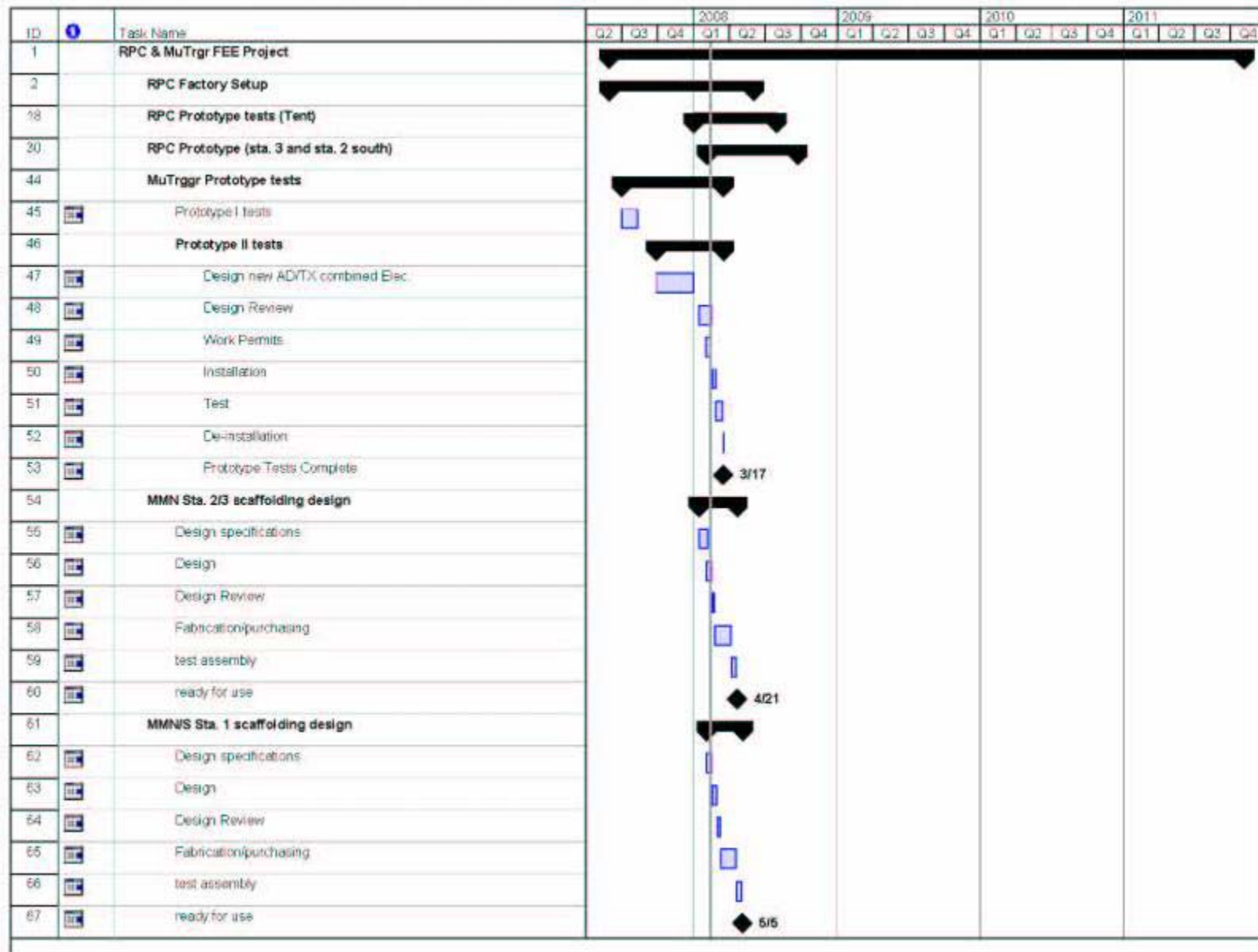


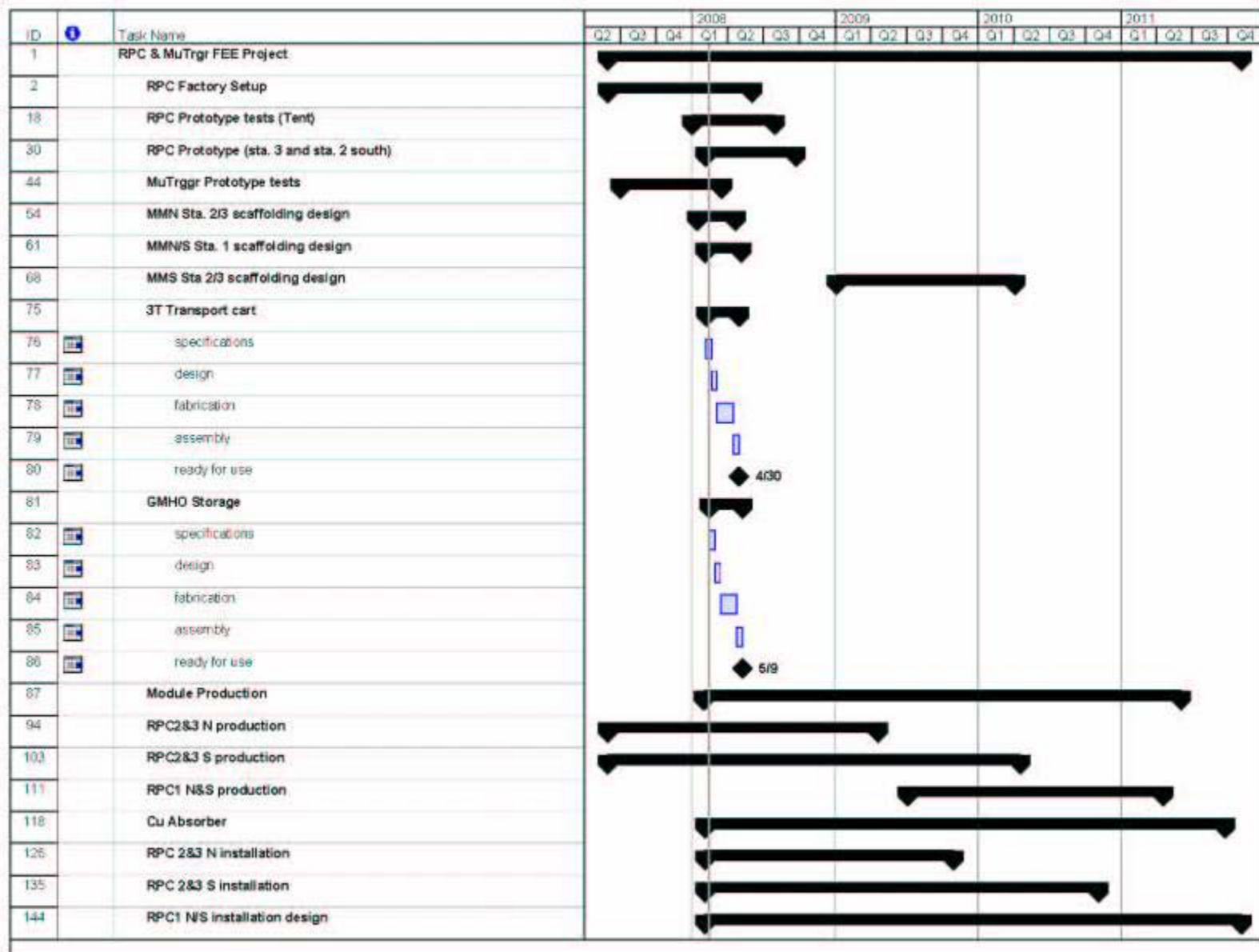












- Mu Trigger FEE Prototype (Informal, currently in process)
- CM Crane (analyses complete)
- MMN Scaffolding 2/19-2/22
- Station 1 Scaffolding 3/3 - 3/7
- RPC Prototype 3/17-3/28 (Prototype design, installation, gas system, electronics, safety)
- Mu Trigger FEE N & S 3/17-3/28
- MuTrigger N & S rack platform 4/21-5/2
- RPC Stations 1, 2 and 3 6/22-6/20
- MMS scaffolding 2/2/09-2/6/09

# Items Needed for Design Review

March 2008: RPC prototypes and MuTrigger FEE upgrades

RPC Group:

Detailed Layouts for RPC2 & RPC3 Mechanical assembly including detailed weights, materials, dimensions of components and subassemblies.

Detailed layout for the Cu absorber

Prototype Gas system requirements including gas mixture, flow rates, pressures, pressure drops, piping requirements (quantity/lengths, materials, OD, wall thickness. Prototype gas delivery/distribution/control/safety schematic including requirements for relief valves, gauges, valves, etc. Be prepared to address all gas safety issues.

Prototype rack requirements including power, cooling water, etc. and rack component layout.

Detailed installation scheme for prototypes including list of fixtures and special tools required for installation, transportation requirements (i.e. evaluation of level of care to take in moving transporting and orienting the prototypes from the factory through installation. Also include a list of infrastructure modifications required to install the prototypes.

Detailed scheme for installing the Cu absorber for prototype including list of fixtures and special tools required for installation.

Detailed description of all electronics requirements internal to the prototype detectors, in the prototype rack, and in the rack room. Include all safety issues for all items (fusing, grounding, Recognized lab ratings, e.g. UL, etc.)

Other integration requirements, e.g. DAQ requirements

Outlines for gas system and electrical system operating procedures.

## Items Needed for Design Review

March 2008: RPC prototypes and MuTrigger FEE upgrades  
Mu Trigger FEE Group:

Detailed Layouts for FEE enclosure assembly including detailed weights, materials, dimensions of components and subassemblies.

Cooling water and air requirements for FEE's including flow rates, pressures, pressure drops and temperature control requirements. Provide schematics for water and air distribution including valves, gauges, etc.

Rack requirements including power, cooling water, etc. and rack component layout.

Detailed installation scheme for FEE's including list of fixtures and special tools required for installation. Also include a list of infrastructure modifications required to install the prototypes.

Detailed description of all electronics requirements internal to the FEE's, in the racks, and in the rack room. Include all safety issues for all items (fusing, grounding, Recognized lab ratings, e.g. UL, etc.)

Other integration requirements, e.g. DAQ requirements

# New Beampipe Design & Review

TECHNICAL SUPPORT + 2008

Current beampipe IR region:  
3 inch (76.2 mm) OD Be section,  
.04" (1 mm) wall thickness  
55" (1400 mm) long

Proposed beampipe IR region:  
1.61 inch (41.0 mm) OD Be section,  
.02" (0.5 mm) wall thickness  
31.5" (800 mm) long

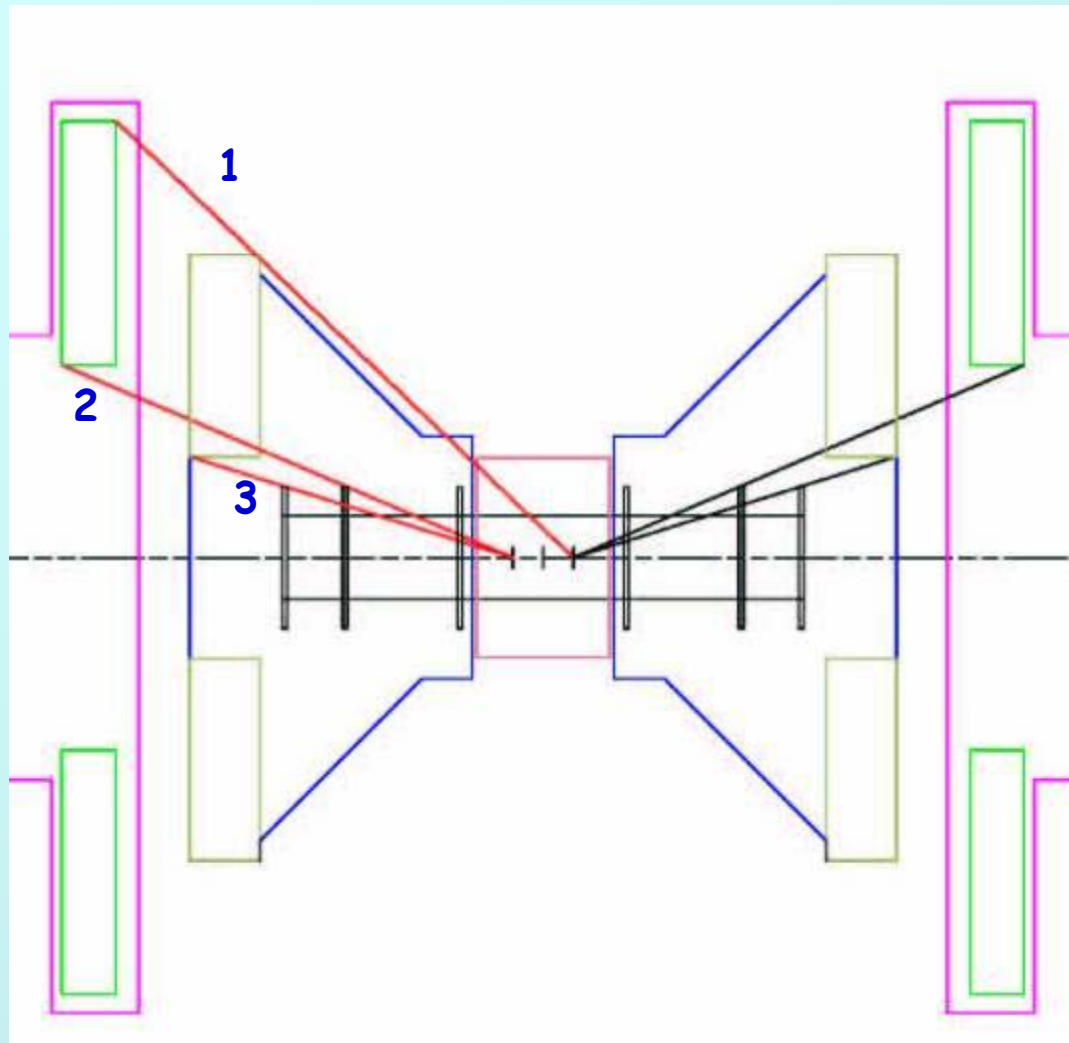
Design to be ready  
for final review by  
2/29/08

Procurement March 08

Ready for installation  
March 09



# New Beampipe Design & Review



Anamorphic view

Normal (run) position

1. MPC&BBC max shadow

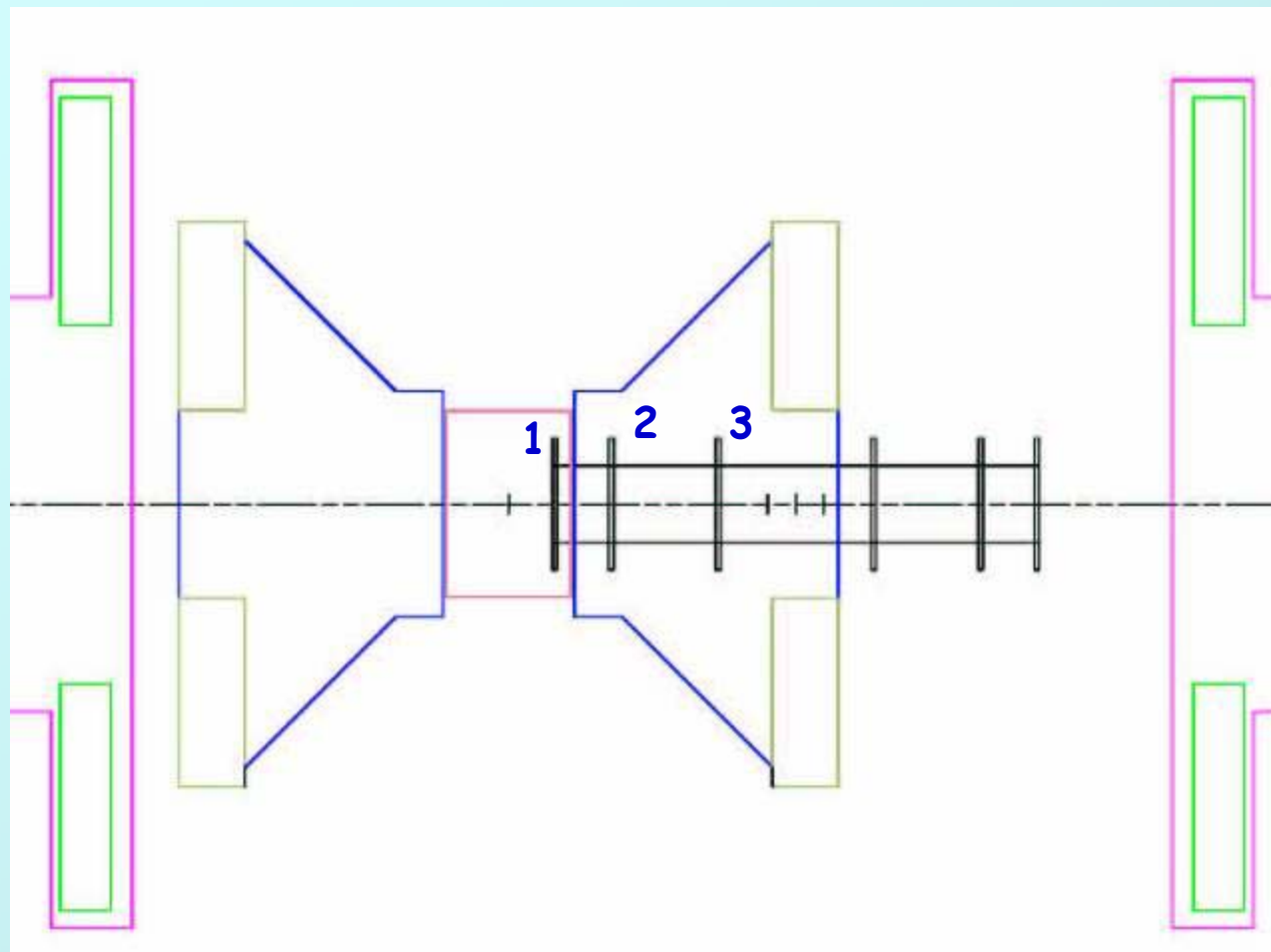
2. MPC min shadow

3. BBC min shadow



# New Beampipe Design & Review

TECHNICAL SUPPORT + 2002



Anamorphic view

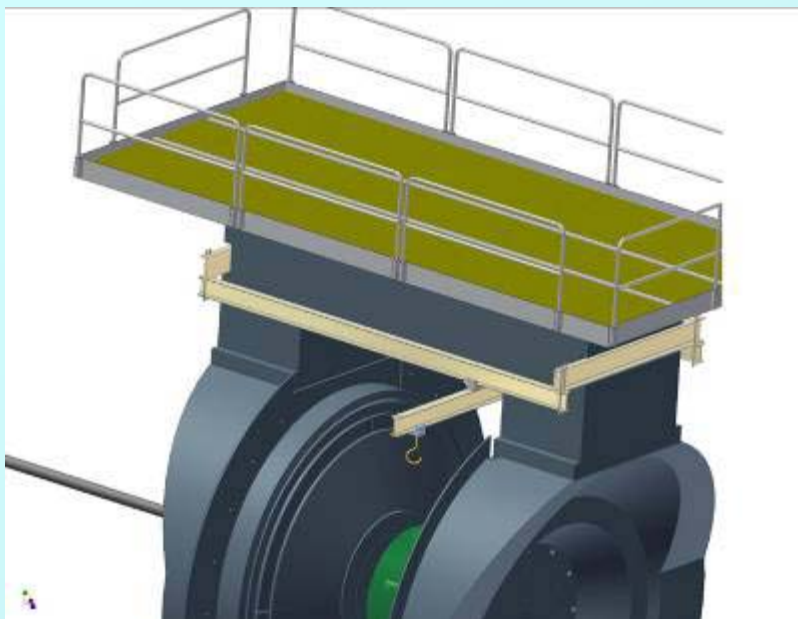
CM moved south position

1. Flange does not shadow BBC or MPC  
Accessible in this position

2. Flange does not shadow MPC partial shadow of BBC. Only accessible in mid position

3. Flange in NCC

# CM Crane



- Uses Gorbel 1-ton capacity Ceiling mounted Bridge Crane, modified to be supported by 2 Steel Channels attached to CM
- Bridge and hoist to be removed for running.
- Crane Design ready for review

Waiting for design review.

**PHENIX** Relativistic Heavy Ion Collider (RHIC) PHENIX Experiment  
BROOKHAVEN NATIONAL LABORATORY  
ENGINEERING CALCULATION

No. 00000000  
Date: 10/26/2007  
Rev: 0  
PAGE: 1 of 11

PREPARED BY: Dan Lynch, P.E.  
CHECKED BY: \_\_\_\_\_

TITLE: Central Magnet Bridge Crane

**Introduction**

The PHENIX IR overhead Crane has been utilized for moving equipment and detectors too heavy or unsuitable to be moved by hand in all areas of the IR. The recent addition of the "bridge" platform above the Central Magnet ("CM") limits the overhead cranes utility in the CM region. This analysis note describes the design and analysis for a newly customarily located bridge crane to service the CM region of the PHENIX detectors.

The bridge crane itself does not require a structural analysis, as it is a commercial stock bridge crane, 1-ton capacity, GORBEL, Inc. model G11CS. This is a catalog item and will be ordered with a work factor of 1.0.

Analysis described herein are as follows:

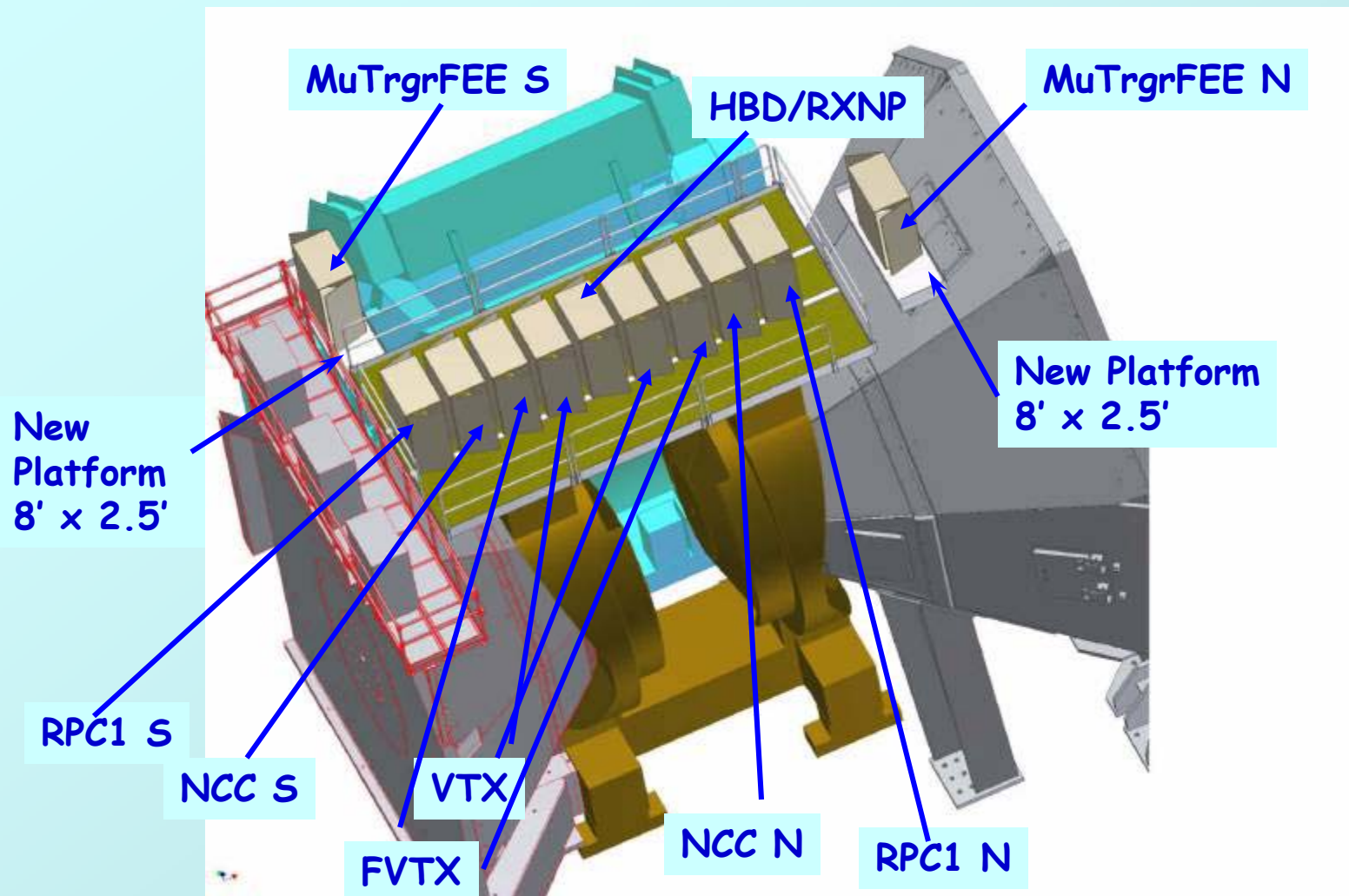
1. Dimensional analysis to demonstrate that the apparatus does not interfere with any existing features of the PHENIX detectors and/or IR equipment.
2. Structural analysis of the support channels.
3. Stability analysis of the CM under most extreme crane loading scenarios.
4. Vibration analysis to demonstrate compliance of installation methodology with ISL equipment and personnel safety requirements and conformances to "best practice" philosophy.



Current PHENIX plans call for installation of the CM crane in late spring 2008.

# Muon Trigger Rack Platforms

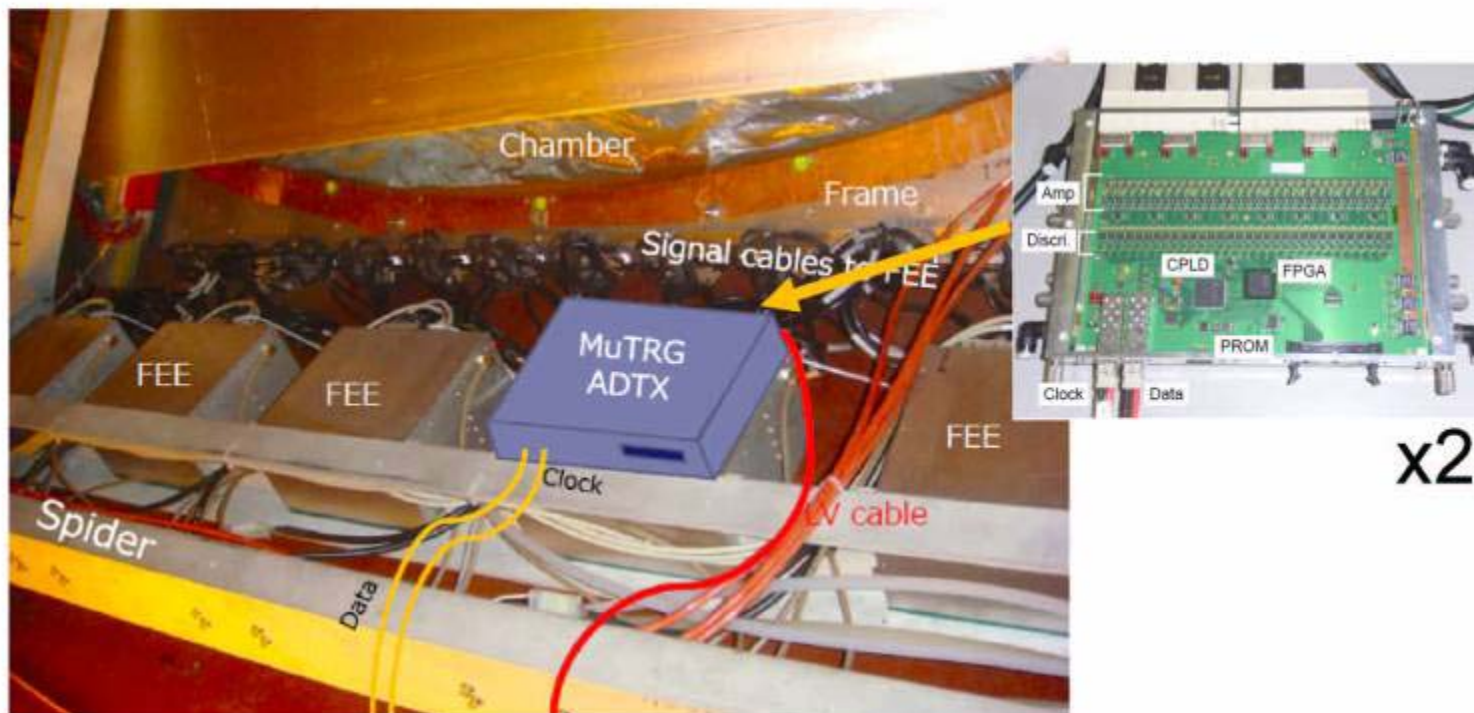
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# New ADTX Board Test @ IR

Feb. 14, 2008  
PHENIX Planning Meeting  
Yoshinori Fukao

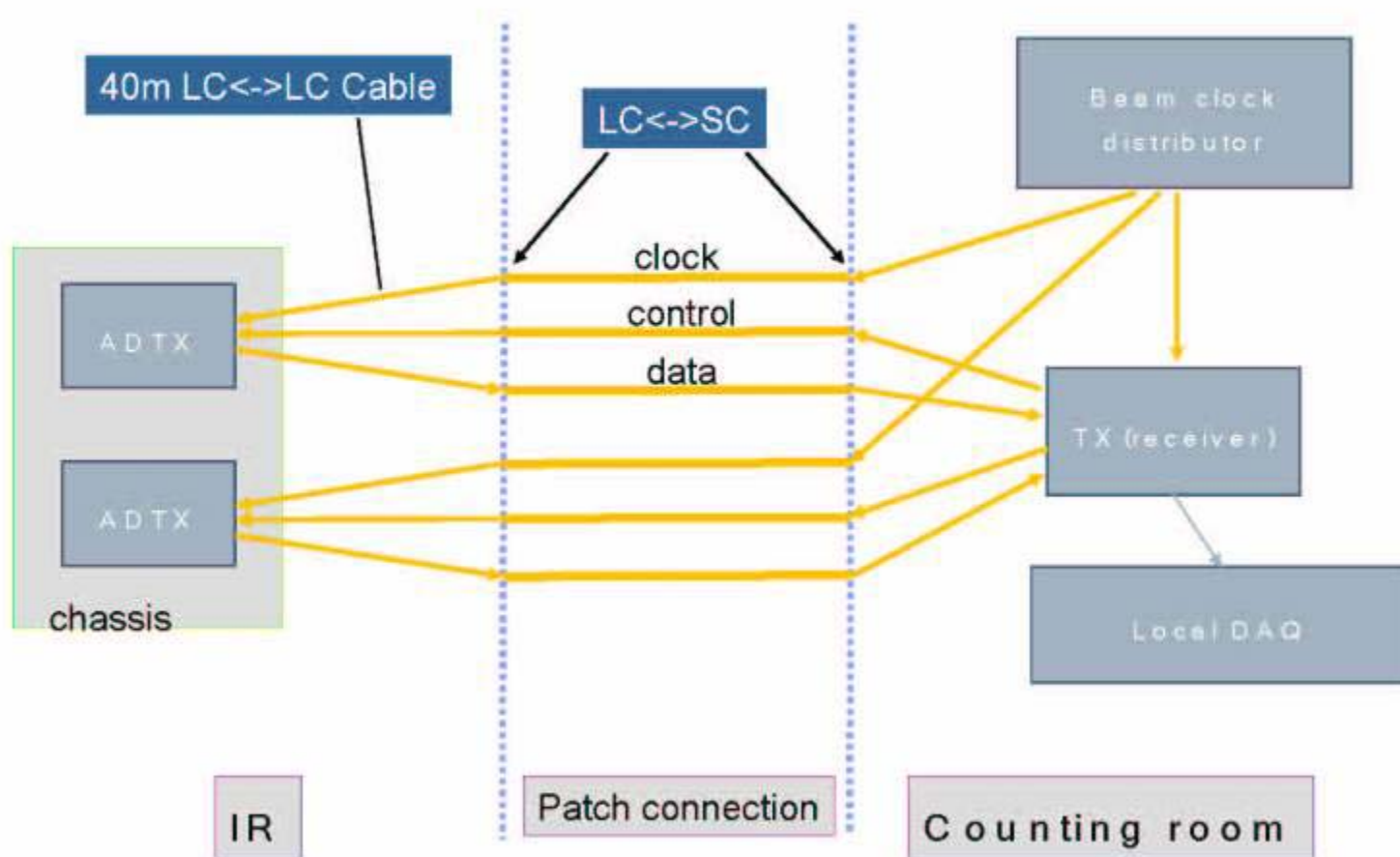
# MuTr North, Station-2, Octant-7



We will install 2 ADTX boards in 1 chassis.



# Setup Scheme



# Patch Connections

We need 6 connections for the test.

We found 4 connections available on MuTr-N patch panel.

We looked for more 2 connections.

-> No connections were available...

We looked for more connections on MuID-N patch panel.

-> 6 connections available on MuID-N patch panel.



# Cabling in IR

## Optical Cables

- We set up 10 cables from MuTr-N panel to MuTr.
- End of cables were inserted into Muon magnet.
- No cables were put from MuID-N panel to MuTr yet.  
-> We will put at least 2 cables (~10m) in 2/27.

## LV cables

- End of cables were inserted into Muon magnet.  
(Cables have been located from last summer.)

## Some other stuff

Problem of LC <-> SC connectors

-> Steve found and ordered proper connectors

Packages from Japan arrived.

-> Construct test bench at rack room

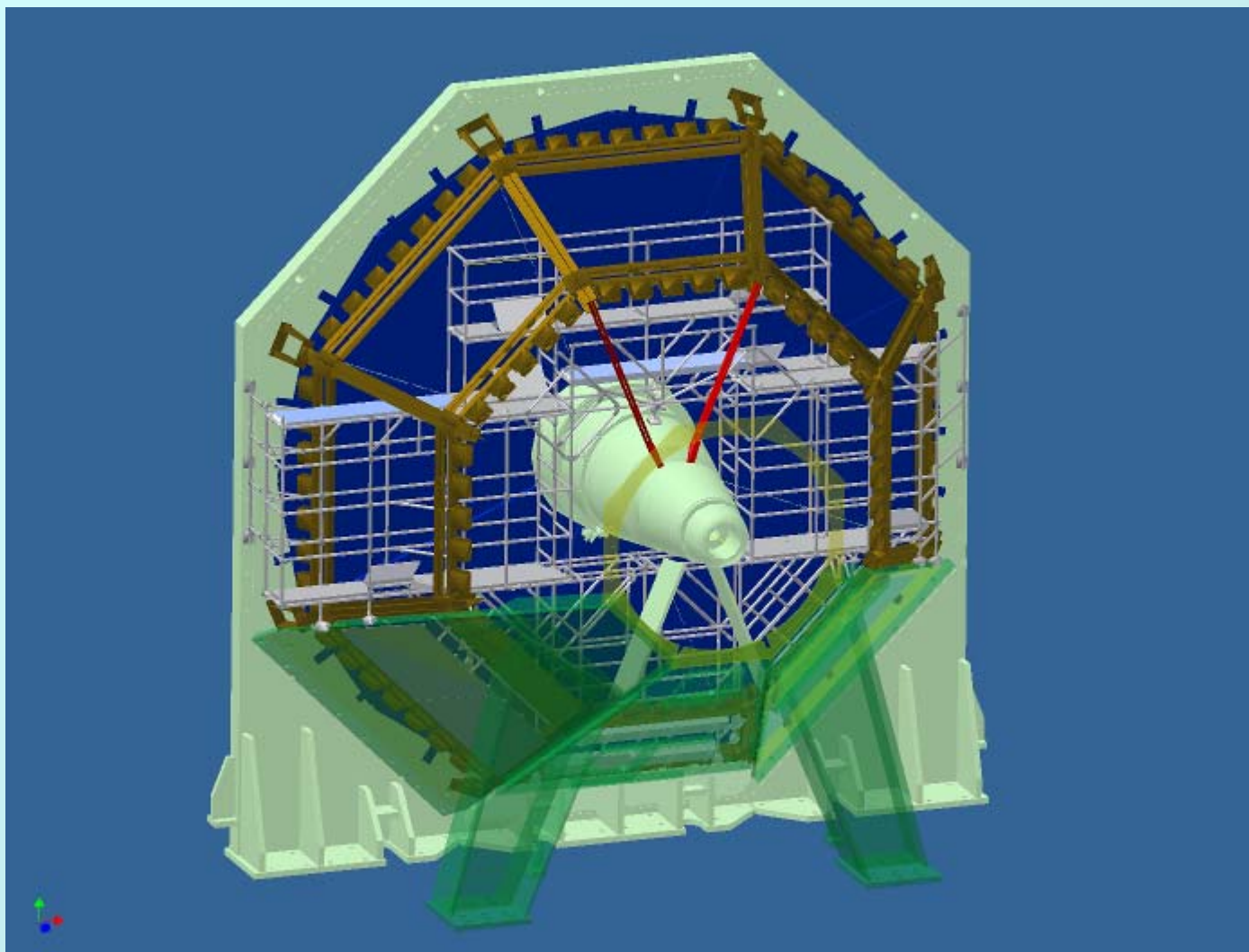
We discussed with Jimmy  
how to hold chassis  
for full install.

(Not for the test at 2/27).



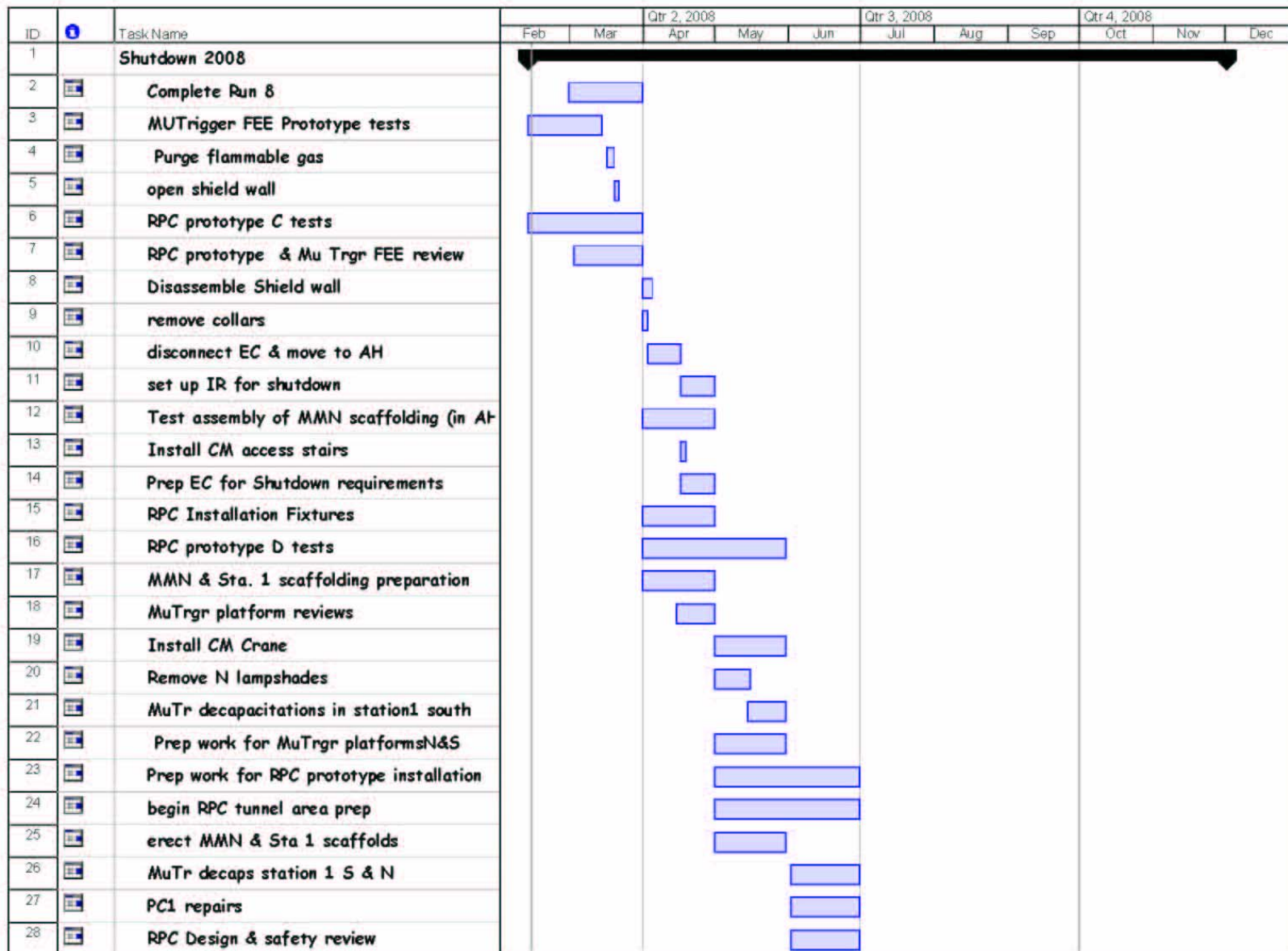


# MMN Scaffolds

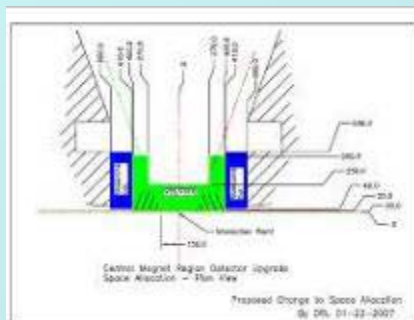
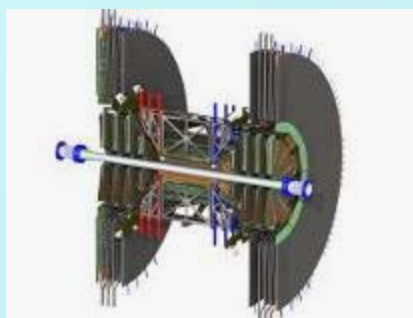
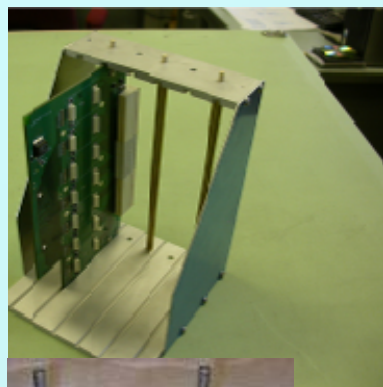
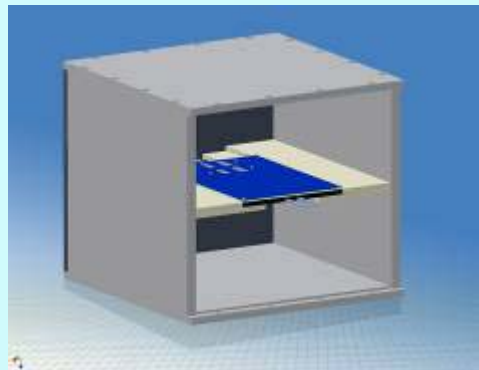


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ID	Task Name	Qtr 2, 2008					Qtr 3, 2008			Qtr 4, 2008		
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
29	Re-Install HBD											
30	RPC prototype gas system											
31	Move shielding for RPC installation											
32	RPC prototype cable routing and support											
33	modify crystal palace and tunnel vapor ba											
34	fabricate RPC installation fixtures											
35	install MuTrgr N											
36	install MuTrgr N platform											
37	TBD subsystem maintenance											
38	Install RPC prototypes											
39	install Mu Trigger FEE's in MMS and MM											
40	Install N&S rack support platforms for M											
41	Install MMN cooling water and air supply											
42	TBD infrastructure work											
43	Replace tunnel shielding											
44	connect electronics/gas/water/air for RPC											
45	install Mutrgr S platform											
46	Install MuTrgr N&S racks											
47	EC into IR											
48	install collars											
49	build shield wall											
50	Prepare for run											
51	blue sheets											
52	white sheets											
53	close wall											
54	start shifts											
55	flam. Gas											
56	physics											



## Other Work

- VTX, FVTX and NCC prototype support
  - Integration
  - Physical and Rack space
  - Infrastructure upgrades
- New Counting House Door
- VTX Prototype for run 8 ?



Counterfeit electronic parts (MOSFETs) were discovered last week. Need to make sure part number matches what was ordered and matches expected description. Report suspect parts to safety.

Make sure doors are locked in unoccupied areas after hours. BNL Police have found many unlocked areas over last 4 months. They will be looking over the 3 day weekend.

Lessons learned- Exploding lithium battery

<https://sbms.bnl.gov/sbmsearch/II/viewLesson.cfm?LessonID=490>

- 2008 Install stations 1 & 2 of MuTr FEE upgrades (north), 1 octant Cu absorber (S), 1 half otants each RPC2/3 S, MMN sta. 2 scaffolding, MuTr Sta 1 N&S scaffolding, 1 octant of MuTrigger FEE upgrades (south, sta 1 & 2), MuTr N stn. 1 & 3 decaps, MuTrigger rack platforms (N&S), CM crane, remove/replace beampipe, infrastructure upgrades & repairs, misc. subsystem work, 1 RPC rack in South tunnel, MuTrgr FEE N & S racks
- 2009 Remove HBD & RXNP, scaffolding in MMS, MuTr S stn. 1 & 3 decaps, RPC2 N, RPC3 N, north Cu absorbers, partial VTX, iFVTX, MuTrgr S sta 1 & 2, MuTrgr S rack, 2 racks in N tunnel, infrastructure upgrades & repairs, misc. subsystem work
- 2010 Remainder of VTX barrel, partial FVTX, south Cu absorber completed, MuTrgr FEE stn. 3 S, any remaining MuTr decaps, infrastructure upgrades & repairs, misc. subsystem work
- 2011 RPC1 N&S, NCC N, remainder of FVTX, DC West upgrade/repair, remove absorbers, infrastructure upgrades & repairs, misc. subsystem work
- 2012 NCC S, upgrades contingency & wishlist, infrastructure upgrades & repairs, misc. subsystem work, TBD new and improved upgrades

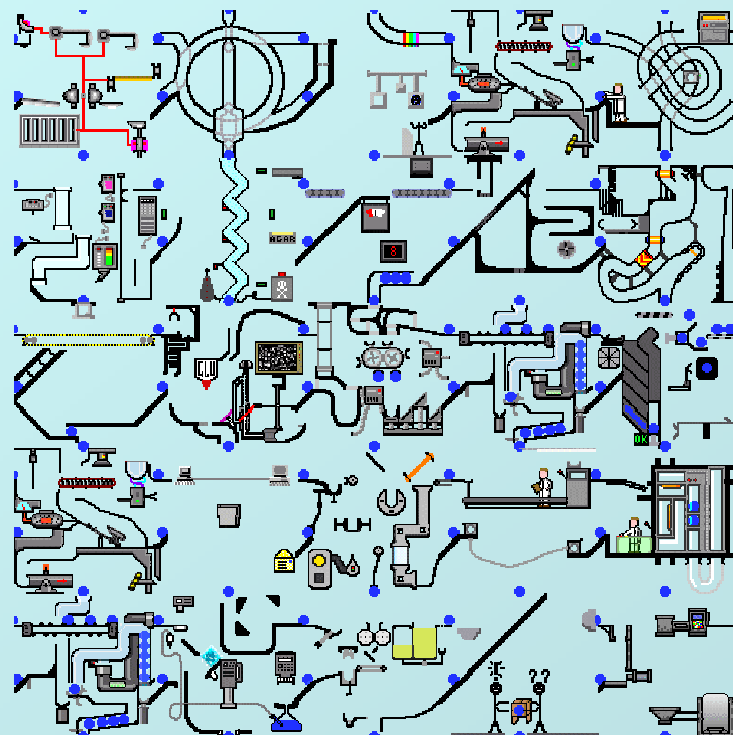
*\* Years refer to the shutdown year and follow the run with the similar number (i.e. work in 2008 is to be done in the shutdown that follows run 8, and so on)*

# Where To Find PHENIX Technical Info

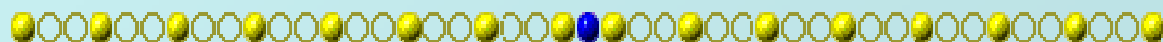
Happy Valentine's Day !

Don't forget your significant other

Or you'll be in big trouble !



Links for the weekly planning meeting slides, long term planning, pictures, videos and other technical info can be found on the web site:



[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)